

## **SOLUBILITY REPORTER GENE CONSTRUCTS**

### **ABSTRACT OF THE DISCLOSURE**

5           The present invention provides polynucleotides that a protein solubility responsive  
promoter operatively linked to a reporter gene and a genetic reporter system comprising these  
polynucleotides together with an expression construct for a target protein. The invention also  
provides cells comprising polynucleotides of the invention and the genetic reporter system.  
These compositions are useful to monitor the solubility of a target protein in a cell and to  
10   identify mutations to the cell or mutations to a polynucleotide encoding the target protein  
that alters the solubility of the target protein. The invention further provides method to  
identify variations in a protein biosynthetic process that alter the solubility of a target protein  
and methods to screen an expression library of recombinant clones to identify clones that  
express soluble proteins. Finally, the invention discloses a novel method of identifying an  
15   antibiotic agent.

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